

17 May 2005 - AQWA

MAR for environmental benefits

Benefits

- A more natural way of disposing of wastewater by allowing it to reach the ocean through the aquifer. Unlike ocean disposal – short circuiting

Risks or Concerns

- Assimilation capacity of the aquifer (risk of choking the aquifer)
- Accidents happen
- Potential to contaminate WA's drinking water
- Using large areas of land for infiltration ponds

Further Information Required

- Look at locations for MAR – where is it best to have MAR? e.g. along the coast to help control the salt water wedge.
- Cost analysis. What is the optimal size for MAR projects? Must be between single-residence and large wastewater treatment plant (which takes 1/3 of Perth wastewater). Collecting large volumes of wastewater and then distributing out for MAR may not be efficient – economies of scale.

Other Issues or Comments

- What evidence is there that septic tanks were an issue? People had septic tanks and some reported to drink bore water. No problems?
- Pine trees increase abstraction on Gnangara Mound.
- Use of alternatives to MAR, e.g. artificial wetlands? Development of other creative solutions.
- Demonstration projects.
- Thought: piping wastewater up gradient of the Swan River and injecting to keep the river flowing? Dilute nutrients.
- Is MAR a bandaid solution? (using ground to clean water). Have other ideas or technologies been considered? Better to put in and leave, rather than use.
- Urgency of recharge before environmental values are lost. Groundwater dependent ecosystems at risk, will be lost in less than 10 years. Shouldn't waste time considering minor issues.

- Asked about the possibility that recharge water may migrate into drinking water sources, the group was quite comfortable with the idea of drinking the treated wastewater given the DoE and DoH safeguards.

MAR for General Re-use or Multiple Benefits

Benefits

- Replace water being removed from the Gngangara Mound, including urban wetlands.
- Enhance environmental values e.g. wetlands and caves.
- Direct substitution (not MAR) e.g. for horticulture.
- Prevent salt water intrusion.
- Need to target location of MAR to get benefits.
- Use soil-aquifer treatment with MAR
- Save energy with MAR

Risks or Concerns

- Education (public participation) (all wastewater should be kept on land)
- Prefer infiltration to injection, biological processes
- Public perception of taste difference
- Don't risk Gngangara first, need full scale trial (5-10 years) to demonstrate operational/control before transfer to Gngangara. Sites – e.g. urban/ environmental benefits, lakes
- Need to test hydrogeological modelling with trials
- Detailed environmental guideline for environmental benefits

Further information required

- Need evidence that scheme would actually work
 - on Swan Coastal Plain
 - on-going/extended trial
 - biological/chemical reduction in aquiferPreferably operate a smaller scheme in metro area for environmental benefits and monitor in detail.
- Need to demonstrate need – that MAR is more effective and efficient than alternatives.
- Demonstrate a suburb on wastewater for garden irrigation (3rd pipe)

Other issues or comments

- Is it worth saving environmental value (e.g. stygofauna)?
- New residential – need integrated water concept planning.
- Relocate water demands (fit for purpose) to near source e.g. industry – planning. Only use MAR as a tool where necessary, don't want long distance transport.